

1. An apparatus for distributing thermoplastic material supplied from a plurality of liquid inlets in a cross-machine direction of a meltspinning apparatus, comprising:
 - a first linear flow equalizer including a first plurality of flow
 - 5 passageways of substantially equal length that divide a flow of a first thermoplastic material supplied from the plurality of liquid inlets into individual streams having a spaced relationship in the cross-machine direction.

2. The apparatus of claim 1 further comprising:
a spinneret having a plurality of orifices communicating with said first plurality of flow passageways.
3. The apparatus of claim 1 further comprising:
a second linear flow equalizer including a second plurality of flow passageways of substantially equal length that divide a flow of a second thermoplastic material into individual streams having a spaced relationship in
5 the cross-machine direction; and
a combining plate capable of combining individual streams of the first thermoplastic material with individual streams of the second thermoplastic material to form multi-component filaments.
4. The apparatus of claim 1 wherein said first plurality of flow passageways further comprises:
a first plurality of elongated slots each extending in the cross-machine direction and including opposed closed ends substantially equidistant
5 from one of the plurality of liquid inlets; and
a first plurality of throughholes each substantially registered in alignment with one of said opposed closed ends of a corresponding one of said first plurality of elongated slots.

5. The apparatus of claim 4 wherein said first plurality of flow passageways further comprises:

a second plurality of elongated slots each extending in the cross-machine direction and including opposed closed ends substantially equidistant

5 from one of the first plurality of throughholes; and

a second plurality of throughholes each substantially registered in alignment with one of said opposed closed ends of a corresponding one of said second plurality of elongated slots.

6. The apparatus of claim 1 further comprising:

a sheet-forming plate downstream of said linear flow equalizer, said sheet-forming plate having a curved surface positioned for intercepting liquid exiting from said first plurality of flow passageways.

7. The apparatus of claim 1 wherein said first plurality of flow passageways divide the flow of the first thermoplastic material supplied from the plurality of liquid inlets into individual streams having a spaced relationship in a machine direction orthogonal to the cross-machine direction.

8. A linear flow equalizer for distributing thermoplastic material supplied to a spin pack of a meltspinning apparatus having a cross-machine direction, comprising:
- an inlet plate having a plurality of liquid passageways spaced
 - 5 substantially equidistantly from each other in the cross-machine direction;
 - a first equalizer plate positioned downstream from said inlet plate and having a first plurality of elongated slots each centered about one of said plurality of liquid passageways, each of said first plurality of elongate slots extending in the cross-machine direction and including opposed closed ends
 - 10 substantially equidistant from one of said plurality of liquid passageways; and
 - a second equalizer plate positioned downstream from said first equalizer plate, said second equalizer plate having a first plurality of throughholes each substantially registered in alignment with one of said opposed closed ends of a corresponding one of said first plurality of elongated
 - 15 slots.

9. The linear flow equalizer of claim 8 further comprising:
a combining plate configured to combine flowable thermoplastic material from said first plurality of throughholes with another flowable thermoplastic material to generate a multicomponent filament; and
- 5 a spinneret plate coupled in fluid communication with said combining plate.
10. The linear flow equalizer of claim 8 wherein flow paths from each of said plurality of liquid passageways to each of said first plurality of throughholes are substantially equal and substantially symmetrical in the cross-machine direction.
11. The linear flow equalizer of claim 8 further comprising:
a third equalizer plate downstream from said second equalizer plate, said third equalizer plate having a second plurality of elongated slots each substantially centered in the cross-machine direction about one of said
- 5 first plurality of throughholes, each of said second plurality of elongate slots having opposed closed ends substantially equidistant from one of said first plurality of throughholes; and
- a fourth equalizer plate downstream from said third equalizer plate, said second equalizer plate having a plurality of second throughholes
- 10 each substantially registered in alignment with one of said opposed ends of a corresponding one of said second plurality of elongated slots.

12. The linear flow equalizer of claim 8 further comprising:
a sheet-forming plate downstream of said second equalizer plate,
said sheet-forming plate having at least one curved surface positioned for
intercepting liquid exiting from said first plurality of throughholes.

13. The linear flow equalizer of claim 8 wherein said first plurality of
elongated slots are arranged in substantially parallel first and second rows in
the cross-machine direction.

14. The linear flow equalizer of claim 13 wherein said first plurality of
throughholes are arranged in substantially parallel first and second rows in the
cross-machine direction.

15. The linear flow equalizer of claim 14 further comprising:
a sheet-forming plate downstream of said second equalizer plate,
said sheet-forming plate having first and second curved surfaces each
positioned for intercepting liquid exiting from a corresponding one of said first
5 and second rows of said first plurality of throughholes.

16. The linear flow equalizer of claim 8 wherein said inlet plate
includes a plurality of liquid-carrying channels coupling one of said plurality of
liquid passageways in fluid communication with a central liquid inlet
passageway.

17. The linear flow equalizer of claim 16 wherein each of said plurality of liquid-carrying channels includes a plurality of intersecting linear segments that extend symmetrically in the cross-machine direction.

18. The linear flow equalizer of claim 17 wherein said plurality of linear segments extend symmetrically in a machine direction orthogonal to the cross-machine direction.

19. The linear flow equalizer of claim 17 wherein said plurality of liquid-carrying channels branch such that said first plurality of throughholes are arranged in substantially parallel first and second rows aligned in the cross-machine direction.

20. The linear flow equalizer of claim 16 wherein said inlet plate includes a downstream surface carrying said plurality of liquid-carrying channels, and a second plurality of throughholes upstream of said first equalizer plate, each of said second plurality of throughholes substantially
5 registered in centered alignment with one of said first plurality of elongated slots.

21. The linear flow equalizer of claim 7 further comprising:
a third equalizer plate downstream of said inlet plate, said third equalizer plate having a plurality of liquid-carrying channels coupling one of said plurality of liquid passageways in fluid communication with a central liquid
5 inlet passageway.

22. The linear flow equalizer of claim 21 wherein each of said plurality of liquid-carrying channels includes a plurality of intersecting linear segments that extend symmetrically in the cross-machine direction.

23. The linear flow equalizer of claim 21 wherein said plurality of linear segments extend symmetrically in a machine direction orthogonal to the cross-machine direction.

24. The linear flow equalizer of claim 21 wherein said plurality of liquid-carrying channels branch such that said first plurality of throughholes are arranged in substantially parallel first and second rows aligned in the cross-machine direction.

25. A method of distributing thermoplastic material supplied to a spin pack to form a non-woven web, comprising:

dividing a flow of a first thermoplastic material in a cross-machine direction of a spin pack among flow paths of substantially equal length to form

5 individual streams of the first thermoplastic material spaced in the cross-machine direction;

forming a plurality of filaments including the first thermoplastic material from the individual streams of the first thermoplastic material; and

collecting the plurality of filaments to produce a non-woven web.

26. The method of claim 25 wherein dividing the flow of the first thermoplastic material further comprises:

directing the flow of the first thermoplastic material to a center of each of a plurality of first slots each extending in the cross-machine direction

5 between opposed first closed ends; and

allowing the flow to divide into two substantially equal first portions each flowing in the cross-machine direction to one of the first closed ends.

27. The method of claim 26 further comprising:

directing each of the first portions of the first thermoplastic material downstream to a center of one of a plurality of second slots each extending in the cross-machine direction between opposed second closed

5 ends; and

allowing each of the first portions of the first thermoplastic material to divide into two substantially equal second portions each flowing in the cross-machine direction to one of the second closed ends.

28. The method of claim 25 further comprising:

dividing a flow of a second thermoplastic material to the spin pack in a cross-machine direction among flow paths of substantially equal length to form individual streams of the second thermoplastic material spaced in the

5 cross-machine direction; and

combining the flow of the second thermoplastic material with the flow of the first thermoplastic material to form multi-component filaments.

29. The method of claim 25 wherein further dividing the flow of the first thermoplastic material further comprises:

dividing the flow of the first thermoplastic material symmetrically in a machine direction of the spin pack to provide two rows of individual streams
5 aligned in the cross-machine direction and each contributing to the one of the flow paths of substantially equal length.

30. The method of claim 25 wherein dividing the flow of the first thermoplastic material further comprises:

inletting the first thermoplastic material at a plurality of inlets spaced substantially equidistantly in the machine direction; and
5 bifurcating the first thermoplastic material from each of the plurality of inlets at least once in the cross-machine direction.

31. The method of claim 30 wherein bifurcating the first thermoplastic material further comprises:

directing the flow of the first thermoplastic material from each of the plurality of inlets to a center of one of a plurality of slots each extending in
5 the cross-machine direction between opposed first closed ends; and
allowing the flow of the thermoplastic material from each of the plurality of inlets to divide into two substantially equal first portions each flowing in the cross-machine direction to one of the first closed ends.